

Response Under 37 C.F.R. 1.116

Applicant: Mark M. Butterworth

Serial No.: 10/092,772

Filed: March 7, 2002

Docket No.: 10011181-1

Title: METHOD AND APPARATUS FOR PERFORMING OPTICAL CHARACTER RECOGNITION
(OCR) AND TEXT STITCHING

REMARKS

The following remarks are made in response to the Final Office Action mailed November 28, 2005. In that Office Action, the Examiner rejected claims 1-6 under 35 U.S.C. §102(b) as being anticipated by Nakabayshi, U.S. Patent No. 5,675,672 ("Nakabayshi"). Claims 7-17 were rejected under 35 U.S.C. §103(a) as being unpatentable over Nakabayshi in view of Honma, U.S. Patent N. 6,304,313 ("Honma").

With this Response, Applicant respectfully traverses the Examiner's rejection of claims 1-17. Claims 1-17 remain pending in the application and are presented for reconsideration and allowance.

Examiner's Response to Arguments

In response to Applicant's previously submitted remarks, the Examiner stated the following:

Summary of Arguments

Applicant argues that Nakabayshi does not disclose "receiving direction information indicative of a direction of movement between the image capture device and the document during the capture of the plurality of digital images". Accordingly, applicant requests the withdrawal of the rejection.

Examiner's Response

Examiner respectfully disagrees. Examiner directs the applicant to column 4, lines 45-48 and 54-58 of Nakabayshi where this limitation is glaringly shown. Nakabayshi discloses that the order (i.e. direction) of the scan is preserved and top, bottom, left and right of each scan is determined. Here top, bottom, left and right indicate the direction of movement. Accordingly, Examiner maintains the rejection. (Office Action at para. no. 2).

The disclosure at column 4, line 45-48 and 54-58 of Nakabayshi relates to the optical character recognition (OCR) performed on scanned images 28 and 30, and the storing of the detected characters in memories 14 and 16. The OCR step is performed after scanned images 28 and 30 have been generated from document 32 by a scanner. This disclosure says nothing about the direction of movement of the scanner that scanned document 32 to generate the scanned images 28 and 30.

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Nakabayshi discloses that "edge information (top, bottom, left and right) of each scan 28 and 30 is retained for use in rejoining the files in the first memory 14 and the second memory 16, independent of the coordinates of the coded characters." (Nakabayshi at col. 4, lines 54-58). Thus, this cited portion of Nakabayshi relates to the edges of the scanned images 28 and 30, and says nothing about the direction of movement of the scanner that scanned document 32 to generate the scanned images 28 and 30. Such edge information does not indicate whether the scanner was moving left-to-right during scanning, for example, right-to-left, top-to-bottom, or bottom-to-top.

Nakabayshi does not teach or suggest "receiving direction information indicative of a direction of movement between the image capture device and the document during the capture of the plurality of digital images", as recited in independent claim 1. Nakabayshi does not teach or suggest "a controller coupled to the image sensor and configured to receive direction information indicative of a direction of movement of the digital camera during capture of the plurality of digital images", as recited in independent claim 7. Nakabayshi does not teach or suggest "the processor configured to stitch the text from the electronic text files together based at least in part on direction information indicative of a direction of movement of the digital camera while the digital images are being captured", as recited in independent claim 12.

The Examiner's specific rejections are addressed in further detail below.

35 U.S.C. §102 Rejections

The Examiner rejected claims 1-6 under 35 U.S.C. §102(b) as being anticipated by Nakabayshi, U.S. Patent No. 5,675,672 ("Nakabayshi"). Independent claim 1 recites "receiving direction information indicative of a direction of movement between the image capture device and the document during the capture of the plurality of digital images". The Examiner stated that Nakabayshi discloses at col. 4, lines 45-48, and col. 6, lines 53-54, providing direction information indicative of the direction of movement of the digital camera during the capture of the plurality of digital images. (Office Action at para. no. 3). Applicant respectfully disagrees. Nakabayshi at column 4, lines 45-48, discloses that "[i]n other words, both rows and columns of coded characters will be stored in the order or sequence as the

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original characters appeared to the scanner” As can be determined from reading these lines in the context of the entire paragraph, this cited portion of Nakabayshi indicates an advantage of using a two-dimensional memory, rather than a one dimensional register. Nakabayshi discloses that, with a one dimensional register, there is a need for coordinates for identifying where the original characters in the image appeared. (See, e.g., Nakabayshi at col. 4, lines 34-51). In contrast, with a two-dimensional memory, the stored data includes rows and columns of characters just like the image, so the stored data “mimics” the appearance of the image. (See, e.g., Nakabayshi at col. 4, lines 34-51). Thus, the cited portion of Nakabayshi discusses a format for storing characters appearing in a given image (i.e., two-dimensional rather than one-dimensional). This storage of characters occurs after a document has been scanned by a scanner, and after OCR has been performed on the scanned image, and the cited disclosure says nothing about the direction of movement of the scanner. Nakabayshi at col. 4, lines 45-48 does not teach or suggest “receiving direction information indicative of a direction of movement between the image capture device and the document during the capture of the plurality of digital images”, as recited in independent claim 1.

Nakabayshi at col. 6, lines 53-54, which was also cited by the Examiner, discloses “a handheld scanner 120 for reading-in documents (e.g., 32 in FIG. 1)” This disclosure regarding a handheld scanner does not teach or suggest “receiving direction information indicative of a direction of movement between the image capture device and the document during the capture of the plurality of digital images”, as recited in independent claim 1.

The Examiner also stated with respect to Nakabayshi that the “[d]isclosed method stores scan data in the order received and this is performed automatically without manual intervention. Resulting order is the direction.” (Office Action at para. no. 3). The scan data disclosed in Nakabayshi is image data, and is not “direction information” as recited in independent claim 1. There is no teaching or suggestion in Nakabayshi that the scan data includes any direction information. There is also no teaching or suggestion in Nakabayshi to determine direction information from the scan data.

In view of the above, independent claim 1 is not taught or suggested by Nakabayshi, and is believed to be allowable over the cited reference. In addition, dependent claims 2-6, which further define patentably distinct claim 1, and are further distinguishable over the cited

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reference, are also believed to be allowable over the cited reference. Applicant respectfully requests removal of the rejection of claims 1-6 under 35 U.S.C. §102(b), and allowance of these claims is respectfully requested.

In addition, dependent claim 4 recites "wherein the plurality of digital images are captured with a digital camera, the method further comprising: providing the direction information with a user input device of the digital camera." The Examiner has not identified any disclosure in Nakabayshi that teaches or suggests the limitations of dependent claim 4.

Dependent claim 5 recites "wherein the plurality of digital images are captured with a digital camera, the method further comprising: automatically detecting the direction information." The Examiner has not identified any disclosure in Nakabayshi that teaches or suggests the limitations of dependent claim 5.

35 U.S.C. §103 Rejections

The Examiner rejected claims 7-17 under 35 U.S.C. §103(a) as being unpatentable over Nakabayshi in view of Honma, U.S. Patent No. 6,304,313 ("Honma"). Independent claim 7 recites "a controller coupled to the image sensor and configured to receive direction information indicative of a direction of movement of the digital camera during capture of the plurality of digital images". Independent claim 12 recites that the processor is "configured to stitch the text from the electronic text files together based at least in part on direction information indicative of a direction of movement of the digital camera while the digital images are being captured." As addressed above with respect to claim 1, Nakabayshi does not teach or suggest "receiving direction information indicative of a direction of movement between the image capture device and the document during the capture of the plurality of digital images", as recited in independent claim 1. For the reasons set forth above with respect to claim 1, Nakabayshi also does not teach or suggest the above-quoted limitations of independent claims 7 and 12. Honma also does not teach or suggest the above-quoted limitations of independent claims 7 and 12.

In view of the above, independent claims 7 and 12 are not taught or suggested by Nakabayshi and Honma, either alone or in combination, and are believed to be allowable over the cited references. In addition, dependent claims 8-11 and 13-17 which further define

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patentably distinct claims 7 and 12, respectively, and are further distinguishable over the cited references, are also believed to be allowable over the cited references. Applicant respectfully requests removal of the rejection of claims 7-17 under 35 U.S.C. §103(a), and allowance of these claims is respectfully requested.

In addition, dependent claim 9 recites "[t]he digital camera of claim 7, and further comprising: a user input device for inputting the direction information." The Examiner has not identified any disclosure in Nakabayshi or Honma that teaches or suggests the limitations of dependent claim 9.

Dependent claim 10 recites "[t]he digital camera of claim 7, and further comprising: a motion detector for automatically detecting the direction information." The Examiner has not identified any disclosure in Nakabayshi or Honma that teaches or suggests the limitations of dependent claim 10.

Dependent claim 15 recites "[t]he electronic device of claim 12, wherein the device is configured to allow a user to enter the direction information via the input device." The Examiner has not identified any disclosure in Nakabayshi or Honma that teaches or suggests the limitations of dependent claim 15.

Dependent claim 16 recites "[t]he electronic device of claim 12, and further comprising: a motion detector for automatically detecting the direction information." The Examiner has not identified any disclosure in Nakabayshi or Honma that teaches or suggests the limitations of dependent claim 16.

CONCLUSION

In view of the above, Applicant respectfully submits that pending claims 1-17 are in form for allowance and are not taught or suggested by the cited references. Therefore, reconsideration and withdrawal of the rejections and allowance of claims 1-17 is respectfully requested.

No fees are required under 37 C.F.R. 1.16(h)(i). However, if such fees are required, the Patent Office is hereby authorized to charge Deposit Account No. 50-3718.

The Examiner is invited to contact the Applicant's representative at the below-listed telephone numbers to facilitate prosecution of this application.

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Docket No.: 10011181-1

Title: METHOD AND APPARATUS FOR PERFORMING OPTICAL CHARACTER RECOGNITION
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Any inquiry regarding this Response should be directed to either William P. O'Meara at Telephone No. (303) 298-9888, Facsimile No. (303) 297-2266 or Jeff A. Holmen at Telephone No. (612) 573-0178, Facsimile No. (612) 573-2005. In addition, all correspondence should continue to be directed to the following address:

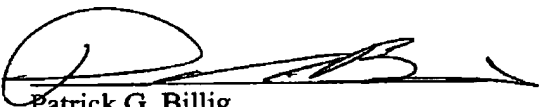
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Respectfully submitted,

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Patrick G. Billig
Reg. No. 38,080**CERTIFICATE UNDER 37 C.F.R. 1.8:**

The undersigned hereby certifies that this paper or papers, as described herein, are being transmitted via telefacsimile to Examiner Perungavoor, Group Art Unit 2625, at Fax No. (571) 273-8380 on this 30 day of January, 2006.

By: 

Name: Patrick G. Billig